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(54) Method of making booklets with photographs and apparatus therefore

Verfahren zum Herstellen von Büchlein mit einem Lichtbild und Vorrichtung zur Durchführung des Verfahrens

Procédé de fabrication de carnets munis d'une photo et appareil pour sa mise en oeuvre

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(73) Proprietor: FUJI PHOTO FILM CO., LTD.
Kanagawa 250-01 (JP)

(72) Inventors:
• Oshikoshi, Yuji
c/o Fuji Photo Film Co., Ltd.
Minato-ku Tokyo (JP)
• Suganuma, Yoshimi
c/o Fuji Photo Film Co., Ltd.
Minato-ku Tokyo (JP)
• Hara, Hiroshi
c/o Fuji Photo Film Co., Ltd.
Minami-Ashigara-shi Kanagawa-ken (JP)

• Shiota, Kazuo
c/o Fuji Photo Film Co., Ltd.
Ashigarakami-gun Kanagawa-ken (JP)
• Takehara, Nobumitsu
c/o Fuji Photo Film Co., Ltd.
Ashigarakami-gun Kanagawa-ken (JP)
• Sakamoto, Kichiro
c/o Fuji Photo Film Co., Ltd.
Ashigarakami-gun Kanagawa-ken (JP)

(74) Representative: Grünecker, Kinkeldey,
Stockmair & Schwanhäusser
Anwaltssozietät
Maximilianstrasse 58
D-80538 München (DE)

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Description

Background of the Invention

The present invention relates to a method and an apparatus for making personal booklets with photographs, and more particularly to a method and apparatus for making personal booklets having a page with a composite image comprising a picture of human figure and personal data relating to the human figure.

Personal booklets such as passports have a picture of the face of the bookholder attached to one of pages thereof as well as personal data of the bookholder including the name, nationality, date of birth, sex, date of issue, a personal identification number and so forth to provide the book holder's identity. This picture is covered by a transparent cover sheet and embossed with a seal in order to prevent the passport from being forged or altered by replacing the picture.

The passports are made through a process of several steps including at least a step of entering the necessary personal data, a step of attaching a picture of the face of the applicant and a step of covering the attached picture with a transparent cover sheet. Such a process requires much labor and is inefficient to deal with a large number of passports at a time. The conventional process of making the passports consequently disturbs the rationalizing of issuing the passports.

On the part of applicants, it has been necessary to prepare, in addition to a picture of the face of the applicant to be attached to the passport, an extra picture of the face of the applicant which is attached to an application form when making an application for a passport.

In recent years, with the growth of international passengers, in an attempt at relieving the confusion of passport control for the entry into, and departure from, a country, machine readable passports (MRPs), which are standardized across the world in order to make it possible to either optically or electrically, or visually, read personal data on machine readable passports by a particular machine, are experimentally introduced at airports of some countries.

For preparing such machine readable passports, the process of making the machine readable passport requires, in addition to the above described steps, another step of providing machine readable personal data on the passport. Due to this additional step, it becomes more troublesome to prepare the machine readable passports, hindering the rationalization of issuing passports accordingly.

A method of making a personal booklet as indicated above is known from GB-A-20 82 505. However, this known method requires a plurality of time consuming steps, such as attaching a photograph to a record sheet and printing the data on said record sheet.

Accordingly, it is an objective of the present invention to provide a method and an apparatus of preparing a personal booklet with machine readable personal data of the

book holder to provide the book holder's identity with increased efficiency.

The afore-mentioned objective concerning the method is performed, according to the present invention, in that said transparent cover sheet and said support sheet are bound in said booklet separately but adjacent to each other, said layer is an image receiving layer, formed on one of said transparent cover sheet and said support sheet, said photograph and said personal data are formed on said image receiving layer as a composite image, which is provided by an image composing device, in which the photograph of the applicant and personal data are entered, that said composite image is photographically printed onto a photosensitive paper and is thermally transferred onto said image receiving layer, and that the transparent sheet with the image receiving layer is adhered to the supporting sheet.

According to the present invention, the objective concerning the apparatus is performed by an apparatus for making a personal booklet provided with a picture of the face and personal data of the booklet holder for providing the booklet holder's identity, which comprises a cassette containing therein a photosensitive paper; exposure means for exposing said photosensitive paper to a composite image of said picture of the face and said personal data; a container containing therein booklets, each booklet having a page formed with an image receiving layer; superimposing means for superimposing said image receiving layer of said each booklet picked up from said container and said exposed photosensitive paper to force out air of said superimposed image receiving layer and exposed photosensitive paper; and a thermal printing head for heating said superimposed image receiving layer and exposed photosensitive paper to transfer said composite image from said exposed photosensitive paper to said image receiving layer.

The present invention can avoid the necessities of directly attaching a picture of the face of the applicant to a booklet and directly typing personal data of the applicant on the a page of the booklet accordingly, consequently booklets with pictures can be prepared automatically efficiently. In the case of making booklets as passports with pictures of the bookholders, no extra picture is necessary rather than a picture attached to an application form. Furthermore, because it is quite easy to include optically readable characters in a composite image, the passport made by the present invention can be used as a machine readable passport.

Preferred embodiments of the present invention are laid down in the dependent claims.

Thereinafter, the present invention will be explained in greater detail by means of preferred embodiments thereof in conjunction with accompanying drawings, wherein:

Figure 1 is an illustration of a machine readable passport made by the present invention;

Figure 2 is an explanatory illustration showing the construction of the machine readable passport of Figure 1;

Figures 3A to 3C are perspective, exploded illustrations showing a sequence of making the machine readable passport of Figure 1;

Figure 4 is a flow chart illustrating the process of making the machine readable passport of Figure 1 according to a preferred embodiment of the present invention;

Figure 5 is an illustration of a system of making a machine readable passport;

Figure 6 is a block diagram showing a video printer and an image composing apparatus in the system of Figure 5;

Figure 7 is a schematic illustration showing a video printer in the system of Figure 5;

Figure 8 is an explanatory illustration similar to Figure 2 but showing another construction of the machine readable passport of Figure 1;

Figure 9 is a flow chart illustrating the process of making the machine readable passport of Figure 1 according to another preferred embodiment of the present invention;

Figure 10 is a schematic side view of a printing apparatus for optically printing a composite image;

Figures 11A to 11D are explanatory illustration showing exposure framing masks which are used in the printing apparatus of Figure 10;

Figure 12 is a schematic side view of a composite image printing unit of the printing apparatus according to still another embodiment of the present invention;

Figure 13 is a schematic, perspective side view of a composite image printing unit of the printing apparatus according to still another embodiment of the present invention; and

Figure 14 is a schematic, perspective side view of a composite image printing unit of the printing apparatus according to yet another embodiment of the present invention.

Detailed Description of the Invention

Referring now to the drawings in more details and particularly Figs. 1 to 3, there is shown a machine readable passport (MRP) made by an apparatus according to a specific embodiment of the present invention. As shown, a machine readable passport 5 contains a plurality of pages bound as one booklet one of which, for example a front cover page, comprises a transparent cover sheet 2 with an image receiving layer 1 of about 0.01 thickness coated onto the back surface thereof, a supporting sheet 3 adhered to the back of the transparent sheet 2. In the image receiving layer 1, a composite image of personal data 1a and a picture 1b of the face of the passport holder, a graphic design 1c, and special data 1d including optically readable characters is formed. The transparent cover sheet 2 with the image

receiving layer 1 is heat-welded to the supporting sheet 3 by way of a heat-melt type adhesive layer 4 coated onto the front surface thereof to form one page of the machine readable passport 5.

The supporting sheet 3, which is used as a front cover of the machine readable passport 5 as is shown in Fig. 3A, is made of, for example, paper sheets of a thickness between 0.1 and 0.8 mm, plastic sheets, combined sheets of plastic sheets and papers stuck together, or paper sheets with one or both sides laminated with plastic sheets. The plastic sheet is, not exclusively but preferably, of polyethylene terephthalate, polycarbonate, acetylcellulose, cellulose ester, polyvinylacetate, polystylen, polypropylene, polyvinyl chloride, nylon, polyethylene or the like. It is also preferable to mix white pigments such as TiO_2 , ZnO etc., or to contain color pigments or dyes, in the plastics.

The transparent cover sheet 2, which is used as the inside page of the front cover as is shown in Fig. 3A, is made of transparent plastic sheets of about 0.05 to 0.35 mm thickness and is sized equivalent to or slightly smaller than the supporting sheet 3. Any one of the above mentioned plastic materials available as the supporting sheet 3 may be used for the transparent cover sheet 2. As is shown in Fig. 3B, into the image receiving layer 1 a picture 1b of the face and personal data 1a of the passport holder, a graphic design 1c if necessary, and an optically readable special data 1d are transferred in a thermal transfer printing. As will be described later, these picture, design and data 1a to 1d are laid out and are composed as a single composite image on a CRT screen by a computer. Then, a thermal transfer type photosensitive printing paper 40 is exposed to the CRT composed image displayed on the CRT screen to form a latent composite image therein in a three color frame sequence exposure and is, thereafter, thermally developed. The developed composite image is finally transferred onto the image receiving layer 1.

The image receiving layer 1 comprises substances including a dye fixer such as dye mordant agents, which substances can be chemically reactive on dye release from a thermally developable photosensitive layer of the thermal printing paper 40. Any type of dye fixer may be selected according to the properties of dye released from the thermally developable photosensitive layer, chemical compositions of the thermally developable photosensitive layer, thermally transferring conditions and so fourth. It is preferable to use, for example, polymer mordant agents of a high molecular weight. The photosensitive thermal printing paper used in this embodiment may take any type of thermal transfer printing color paper, for example the type of releasing dye which is exposed to light and transferred to the dye fixer containing a mordant agent by the aid of a solvent such as water, the type of transferring released dye to the dye fixer with an organic solvent having a high boiling point, the type of transferring released dye to the dye fixer with a hydrophilic solvent contained in the dye fixer, the type of diffusing or sublimating released dye to transfer it to the dye fixer,

etc. These types of photosensitive thermal transfer printing papers are well known and are disclosed in, for example, U.S. patent No. 4,500,626, Japanese Unexamined Patent Publications Nos. 60-133,449, 59-218,443, 61-238,056, and European Patent No.220,746A2 and so forth.

The adhesive layer of, for example, 0.001 to 0.2 mm thickness is provided over the back surface of the supporting sheet 3 to which the image receiving layer 1 of the transparent sheet 2 is attached. It is preferred to use adhesive materials for the adhesive layer 1 which do not photographically or chemically attack the transferred composite image on the image receiving layer 1 but stick fast the transparent and supporting sheets to each other without generating air bubbles therebetween. It may be permissible to apply the adhesive layer 1 to the image receiving layer 1 after transforming the composite image thereto in place of applying it to the supporting sheet 3. Otherwise, adhesive sheet or adhesive sheet with peelable sheet to which adhesive material is applied may be used.

Over the adhesive layer 4, there is applied a peelable sheet 6 which is sized slightly larger than the supporting sheet 3 so that the periphery of the peelable sheet 6 is easily picked up between fingers and is peeled apart. For easily handling the passport booklet 5 during the preparation thereof, the peelable sheet 6 may be sized equal to or smaller than the supporting sheet 3 so far as larger than the image receiving layer 1. It is to be noted that, as is shown in Fig. 8, the image receiving layer 1 may be formed on the supporting sheet 3 and the adhesive layer 4 may correspondingly be formed over the transparent cover sheet 2.

The process of making machine readable passports will be had from the following description referring to Figs. 4 through 7. As is shown in Figs. 4 and 5, the machine readable passport is prepared through a process of four steps, namely a data entry step 100 including the acceptance of , an image composite step 110, a video image printing step 120 and a finishing step 130.

In the data entry step 100, after attaching a bar-code label 16 carrying a personal identification number to an application form 11, an operator prepares the necessary personal data for describing or identifying the applicant of a machine readable passport such as the name, the date of birth, nationality, sex and so forth by entering them with a word processor 12 having a CRT display 12a, a bar-code reader 12b and a keyboard 12c based on data filled in the application form 11 accepted and storing them in a floppy disk 13. The personal data is stored in the form of coded data along with the personal identifying number read out from the bar-code label 16.

In the image composite step 110, an image of the picture 11a of the face of the applicant attached to the application form 11 and the applicant's personal data are composed as a composed image by an image composer 14. For editing a composite image on a color monitor comprising a color CRT display 23, the operator displays the picture 1b of the face of the applicant, the applicant's

personal data 1a retrieved from the floppy disk 13 and input through a character generator, the graphic design 1c, and the optically readable special data 1d which are constructed based on the personal data. The image composer 14, as is shown in Figs. 5 and 6, comprises a picture image input device 22 such as a TV camera 20 or a color image scanner 21, a color monitor CRT display 23, a console 26 having a keyboard 24 and a bar-code reader 25, a data reader 27 for reading the personal data stored in the floppy disk 13 and data of the graphic design stored in the floppy disk 17, an image composing unit 28 comprising a microcomputer for preparing a composite image from the data read from the floppy disks 13 and 17, and a CRT controller 30 for controlling the color monitor CRT 23 and a black-and-white CRT of the video printer 15. It is preferred to employ a black-and-white TV camera for the TV camera because of having a high resolving power. In the case of employing a black-and-white TV camera, it is necessary to provide color separating means comprising three primary color filters, namely red, green and blue filters, each being insertable into the optical axis of the black-and-white TV camera independently of the other two.

The image processing unit 28, as is shown in detail in Fig. 6, reads out the image data of the picture 1b of the face of the applicant input through the picture image input device 22 and of the personal data of the applicant according to the personal identification number of the applicant. The image data, the personal data of the applicant and the graphic design data are stored in frame memories 31 and 32 under the control of a controller 30 and, thereafter, are transferred to a look-up table matrix circuit 33 and a look-up table memory 34, respectively for correcting gradation. Then those data are composed in the image composing circuit 35. Designated by numerals 37 and 38 are A/D and D/A converters, respectively for converting video signals by color.

In the video image printing step 120, the composite image prepared in the image composing step 110 is printed on the thermal transfer type photosensitive printing paper 40 and, after development, is transferred onto image receiving layer 1 by a video printer 15 in thermal transfer printing. The video printer 15, as is shown in Figs. 6 and 7, comprises a paper cassette 41 containing a roll of thermal transfer type photosensitive printing paper 40, the CRT 29 for displaying a composite image to which the printing paper 40 is exposed, an antechamber 42 for retaining the exposed printing paper 40 in the form of a loop, a water applicator 43 disposed after the antechamber 42 for applying water as an activator for promoting thermal transfer process in a uniform layer to the exposed surface of the printing paper 40, a cutter 44 disposed after the water applicator 43 for cutting off the exposed printing paper 40 to individual print strips, a booklet container 45 in which a number of booklets 5 are stored in a stack with their image receiving layers up, a pair of pressure applying rollers 46 for superimposing and applying pressure between the print strip of the exposed thermal printing paper 40 and the image receiv-

ing layer 1 of a booklet 5 picked up from the booklet container 45 so as to force out air therebetween, a thermal image printing head 47 for applying heat the print strip of the printing paper 40 and the image receiving layer 1 of the booklet 5 superimposed, a container 48 into which the booklet 5 with a composite image transferred thereto is stacked, and a wastepaper container 49 into which the used print strip of the printing paper 40 is thrown away.

The printing CRT 29 sequentially displays a composite image as a black-and-white image in the form of a brightness pattern by color which is projected onto the printing paper 40 by means of a printing lens 52 during the opening of a shutter 51 controlled by a shutter controller 50. For translating each black-and-white image into a corresponding monochromatic image, there are provided three color filters, namely blue, green and red filters 54, 55 and 56 which are inserted into a printing path defined by the printing lens 52 independently of each other so as to perform a three color frame sequence exposure. The printing CRT 29 may be replaced with well known image display devices such as LED image display devices, LC image display devices, laser image display devices or the like.

The printing paper 40, after having been exposed, is intermittently transported into the antechamber 42. After passing the antechamber 42, the water applicator 43 applies water to the exposed surface of the printing paper 40. If the image receiving layer 1 contains heat soluble activator for promoting thermal image transfer such as ureas, crystallized water, micro-capsles or the like, the application of water by the water applicator 43 may be omitted.

After the application of water, the exposed printing paper 40 is cut off to print strips by the cutter 44. Each print strip is laid on top of the image receiving layer 1 of a booklet 5 picked up from the booklet container 45. The pressure applying rollers 46 superimposes the print strip and the image receiving layer 1 of the booklet 5 and applies pressure therebetween to distribute water applied by the water applicator 43 in a uniform layer over the exposed surface of the print strip of the printing paper 40 and/or the image receiving layer 1. The superimposed printing strip and image receiving layer 1 of the booklet 5 is placed between and heated by upper and lower heating plates of the thermal image printing head 47 so as to develop and transfer the thermal image to the image receiving layer 1 from the print strip of the printing paper 40. Because of a relatively long time necessary for the thermal printing step, it is preferred to provide a plurality of thermal printing heads 47 for simultaneously dealing with a plurality of booklets 5. Thereafter, the booklet 5 thus processed is put into the container 48 while the print strip 40a of the printing paper 40 is thrown away into the wastepaper container 49.

In the finishing step 130, as is shown in Figs. 3 and 4, the transparent cover sheet 2 bearing the image receiving layer 1 with a composite image thermally transferred thereonto is superimposed over and adhered to the supporting sheet 3 through the adhesive layer 4 as

one page. Finally, after inspecting the identity between the the personal data and the picture of the face of the applicant and so forth, the booklet 5 as a machine readable passport is delivered to the applicant.

The composite image thermally printed on the passport includes personal data comprising optically readable characters which provides the identity of the passport holder, the passport can be used as a machine readable passport which is checked by an optical character reading machine.

Referring now to Figs. 9 to 11, there is shown an apparatus for making a machine readable passport according to another preferred embodiment of the present invention. As shown, after having accepted an application form 11 (Fig. 10) with a picture of the face 11a and personal data of the applicant, necessary personal data are edited and printed out on a data sheet 65 with characters, or common data, and a pattern previously printed thereon (see Fig. 10) by the aid of a word processor based on the personal data filled in the application form 11. After the inspection of the personal data printed on the data sheet 65, the photosensitive thermal printing paper 40 is directly exposed first to the picture 11a of the face of the applicant attached to the application form 11 and, then, to the data sheet 65. The exposed photosensitive paper is thermally developed and a composed image on the photosensitive paper is transferred onto the image receiving layer formed on the supporting sheet or the transparent cover sheet bound in the booklet. Finally, the supporting sheet and the transparent cover sheet are adhered to each other to sandwich the image receiving layer with the composed image therebetween. After inspecting the composite image, in particular the coincidence between the picture and the personal data, the booklet is delivered as a machine readable passport to the applicant.

The printing apparatus for making the machine readable passport is shown in Fig. 10 wherein same reference characters denote same or similar elements or parts as in the video printer 15 shown in Fig. 7. The printing apparatus 60 comprises the paper cassette 41 containing a roll of photosensitive thermal printing paper 40, first exposure means including a printing lens 63 for exposing the photosensitive thermal printing paper 40 to the picture 11a of the face of the applicant attached to the application form 11, second exposure means including a printing lens 66 for exposing the data sheet 65 placed adjacent to the application form 11 onto the same frame of the photosensitive thermal printing paper 40, the antechamber 42 disposed after the second exposure means for retaining the exposed thermal printing paper 40 in the form of a loop, the water applicator 43 disposed after the antechamber 42 for applying water in a uniform layer to the exposed surface of the thermal printing paper 40 as an activator for promoting thermal transfer, a cutter 44 disposed after the water applicator 43 for cutting off the exposed thermal printing paper 40 to individual print strips, a booklet container 45 in which a number of booklets 5 are stored in a stack with their image receiving lay-

ers up, a pair of pressure rollers 46 for superimposing and applying pressure between the print strip of the exposed thermal printing paper 40 and the image receiving layer 1 of a booklet 5 picked up from the booklet container 45 so as to force out air therebetween, a thermal image printing head 47 for applying heat the print strip of the thermal printing paper 40 and the image receiving layer 1 of the booklet 5 superimposed, a container 48 into which the booklet 5 with an image transferred is stacked, and a wastepaper container 49 into which the used print strip of the thermal printing paper 40 is thrown away.

The first exposure means 61 includes an illumination lamp (not shown) for illuminating the picture 11a on the application form 11 from the upper left of the picture 11a, a first printing lens 63 for projecting an image of the picture 11a on the application form 11 onto a frame of the thermal printing paper 40, and a first exposure framing mask 64 disposed close to the thermal printing paper 40 to expose only the picture 11a on the application form 11 to the thermal printing paper 40.

The second exposure means 62 includes an illumination lamp (not shown) for illuminating the data sheet 65 adjacent to the application form 11 from the upper right of the data sheet 65 on which the personal data 1a, a graphic image 1c and optically readable characters 1d for providing the applicant's identification are printed, a second printing lens 66 for projecting an image of the data sheet 65 onto the same frame of the thermal printing paper 40 onto which the picture 11a is exposed, and a second exposure framing mask 67 disposed adjacent to the first exposure framing mask 64 and close to the thermal printing paper 40 to expose an image of the data sheet 65 to the thermal printing paper 40.

As is shown in Figs. 11A and 11B, the first and second exposure framing masks 64 and 67 are formed with different openings 64a and 67a for defining exposure areas. Due to the provision of the different framing masks 64 and 67, there are printed images of the picture 11a and the data sheet 65 at different positions but on the same frame of the thermal printing paper 40.

In place of the first and second exposure means 61 and 62, a composite image printing unit 70 may be incorporated. As is shown in Fig. 12, the composite image printing unit 70 comprises a stationary table 71 on which the application form 11 or the data sheet 65 is placed, a printing lens 72 for projecting an image of the picture 11a attached to the application form 11 or the data sheet 65 onto the thermal printing paper 40, first and second framing mask 73 and 74 which are interchangeably placed above the printing lens 72 to define exposure areas similar to those shown in Figs. 11A and 11B. When the picture 11a of the application form 11 is printed, the first framing mask 73 is moved and placed above the printing lens 72. After the printing of the picture 11a, the application form 11 is replaced with the data sheet 65. Thereafter, the first framing mask 73 is removed, and the second framing mask 74 is moved and placed above the printing lens 72 for printing the data sheet 65.

Fig. 13 illustrates an alternation of the composite image printing unit 70. A composite image printing unit 80 of this alternation is provided with a pair of printing lenses 82 and 83 for projecting images of the application form 11 and the data sheet 65 placed on the table 81 side by side. First and second framing masks 84 and 85 which are the same as those of the composite image printing unit 70 of Fig. 12 are interchangeably placed above the table 81 to expose sequentially the images of the picture 11a of the application form 11 and the data sheet 65 onto the same frame of the thermal printing paper 40. In this embodiment, because of no necessary operation of replacing the application form with the data sheet, operation is simplified in comparison with using the composite image printing unit 70.

Fig. 14 shows another alternation of the composite image printing unit 70 in which no interchangeable framing masks is used. In a composite image printing unit 90 of Fig. 14, the application form 11 and the data sheet 65 are placed on the table 81 side by side and are simultaneously projected onto a frame of the thermal printing paper 40 by means of a pair of printing lenses. However, the application form 11 is covered with a light blocking mask 87 made of, for example a blackened sheet, formed with an opening 86 for exposing the picture 11a of the application form 11.

The above description of the invention is intended to be illustrative and not limiting. Various changes or modifications in the embodiments described may occur to those skilled in the art and these can be made without departing from the scope of the invention.

Claims

1. A method of making a personal booklet, for providing the booklet holder's identity, comprising the step of: sandwiching a layer, provided with a photograph and personal data of the booklet holder between a transparent cover sheet and a support sheet, **characterised in that** said transparent cover sheet (2) and said support sheet (3) are bound in said booklet separately but adjacent to each other, said layer is an image receiving layer (1), formed on one of said transparent cover sheet and said support sheet, said photograph and said personal data are formed on said image receiving layer as a composite image, which is provided by an image composing device, in which the photograph of the applicant and the personal data are entered, that said composite image is photographically printed onto a photosensitive paper and is thermally transferred onto said image receiving layer, and that the transparent sheet with the image receiving layer is adhered to the supporting sheet.

2. A method according to claim 1, wherein said composite image is provided by the aid of a computer (14).
3. A method according to claim 1, wherein said composite image is optically provided.
4. A method according to at least one of claims 1 to 3, wherein said personal data is entered by the aid of a word processor (12).
5. A method according to at least one of claims 1 to 4, wherein said picture of the face of said applicant is entered through a TV camera (20).
6. A method according to at least one of claims 1 to 4, wherein said picture of the face of said applicant is entered through a color image scanner (21).
7. A method according to at least one of claims 1 to 6, wherein said image receiving layer (1) is formed over said transparent cover sheet (2) bound in said booklet and is adhered to said supporting sheet (3) bound in said booklet through an adhesive layer (4) applied to said supporting sheet (3).
8. A method according to at least one of claims 1 to 6, wherein said image receiving layer (1) is formed over said supporting sheet (3) bound in said booklet and is adhered to said transparent cover sheet (2) bound in said booklet through a transparent adhesive layer (4) applied to said transparent sheet (2).
9. A method according to at least one of claims 1 to 6, wherein said image receiving layer (1) is formed over said supporting sheet (3) bound in said booklet and is adhered to said transparent cover sheet (2) bound in said booklet through an adhesive sheet (4).
10. An apparatus for making a personal booklet provided with a picture of the face and personal data of the booklet holder for providing the booklet holder's identity, which comprises:
 - a cassette (41) containing therein a photosensitive paper (40);
 - exposure means (61, 62) for exposing said photosensitive paper (40) to a composite image of said picture of the face and said personal data;
 - a container (45) containing therein booklets (5), each booklet (5) having a page formed with an image receiving layer (1);
 - superimposing means for superimposing said image receiving layer (1) of said each booklet (5) picked up from said container (45) and said exposed photosensitive paper (40) to force out air of said superimposed image receiving layer (1) and exposed photosensitive paper (40); and
 - a thermal printing head (47) for heating said superimposed image receiving layer (1) and exposed photosensitive paper (40) to transfer said composite image from said exposed photosensitive paper to said image receiving layer.
11. An apparatus according to claim 10, wherein said exposure means (61) includes a CRT (12, 23, 30) for displaying said composite image thereon to which said photosensitive paper is exposed.
12. An apparatus as defined in claim 10, wherein said exposure means (61, 62) includes optically image composing means (63, 66) for composing a picture of the face of an applicant attached to an application form and personal data of said applicant on a data sheet.
13. An apparatus according to at least one of claims 10 to 12, wherein said cassette (45) contains said photosensitive paper in the form of a roll (40).
14. An apparatus according to at least one of claims 10 to 13, further comprising an antechamber (42) disposed before said superimposing means for retaining therein said exposed photosensitive paper in the form of a loop.
15. An apparatus according to claim 14, further comprising a water applicator (43) disposed between said antechamber (42) and superimposing means (46) for applying water as activator for promoting said transfer of said composite image to said exposed surface of said photosensitive paper.
16. An apparatus according to at least one of claims 10 to 15, wherein said superimposing means comprises a pair of pressure applying rollers (46).

Patentansprüche

1. Verfahren zur Herstellung eines Personal-Büchleins, zur Angabe der Identität des Inhabers des Büchleins, mit dem Schritt:
Zwischenlegen einer Schicht, die eine Fotografie und Personaldaten des Inhabers des Büchleins aufweist, zwischen eine transparente Deckfolie und eine Stützfolie,
dadurch gekennzeichnet, daß
die transparente Deckfolie (2) und die Stützfolie (3) in das Büchlein getrennt, jedoch benachbart zueinander gebunden werden,
die Schicht eine Bildempfangs-Schicht (1) ist, die entweder auf der transparenten Deckfolie oder der Stützfolie ausgebildet wird,
die Fotografie und die Personaldaten auf der Bildempfangsschicht als ein zusammengesetztes Bild ausgebildet werden, welches durch eine Bild-Zusammensetz-Vorrichtung bereitgestellt wird, in die die Fotografie des Antragstellers und die Personaldaten eingegeben werden,

daß das zusammengesetzte Bild fotografisch auf ein lichtempfindliches Papier gedruckt und thermisch auf die Bildempfangsschicht übertragen wird, und daß die transparente Folie mit der Bildempfangsschicht an der Stützfolie anhaftend festgehalten wird.

2. Verfahren nach Anspruch 1, wobei das zusammengesetzte Bild mit Hilfe eines Computers bereitgestellt wird. 10
3. Verfahren nach Anspruch 1, wobei das zusammengesetzte Bild optisch bereitgestellt wird.
4. Verfahren nach zumindest einem der Ansprüche 1-3, wobei die Personaldaten mit Hilfe einer Textverarbeitungseinrichtung (12) eingegeben werden. 15
5. Verfahren nach zumindest einem der Ansprüche 1-4, wobei das Bild des Gesichtes des Antragstellers durch eine Fernsehkamera (20) eingegeben wird. 20
6. Verfahren nach zumindest einem der Ansprüche 1-4, wobei das Bild des Gesichtes des Antragstellers durch eine Farbbildabtasteinrichtung (21) eingegeben wird. 25
7. Verfahren nach zumindest einem der Ansprüche 1-6, wobei die Bildempfangsschicht (1) über der transparenten Deckfolie (2), die in das Büchlein gebunden ist, ausgebildet wird und an die Stützfolie (3), die in das Büchlein gebunden ist, durch eine Klebeschicht (4) geklebt wird, die auf die Stützfolie (3) aufgebracht wird. 30
8. Verfahren nach zumindest einem der Ansprüche 1-6, wobei die Bildempfangsschicht (1) über der Stützschicht (3), die in das Büchlein gebunden ist, ausgebildet wird und an die transparente Deckfolie (2), die in das Büchlein gebunden ist, durch eine transparente Klebeschicht (4) geklebt wird, die auf die transparente Folie (2) aufgebracht wird. 35
9. Verfahren nach zumindest einem der Ansprüche 1-6, wobei die Bildempfangsschicht (1) über der Stützfolie (3), die in das Büchlein gebunden ist, ausgebildet wird und an die transparente Deckfolie (2), die in das Büchlein gebunden ist, durch eine Klebefolie (4) geklebt wird. 40
10. Vorrichtung zur Herstellung eines Personal-Büchleins, das ein Bild des Gesichtes und Personaldaten des Inhabers des Büchleins zur Angabe der Identität des Inhabers des Büchleins aufweist, mit: einer Kassette (41), die ein lichtempfindliches Papier (40) enthält; 45
einer Belichtungseinrichtung (61, 62) zur Belichtung des lichtempfindlichen Papiers (40) mit einem zusammengesetzten Bild der Abbildung des

Gesichts und der Personaldaten;
einem Behälter (45), der Büchlein (5) enthält, wobei jedes Büchlein (5) eine Seite aufweist, die mit einer Bildempfangsschicht (1) versehen ist;
einer Überlagerungseinrichtung zum Übereinanderlegen der Bildempfangsschicht (1) jedes Büchleins (5), das aus dem Behälter (45) aufgenommen wird, und des belichteten lichtempfindlichen Papiers (40), um Luft aus dem Bereich zwischen der Bildempfangsschicht (1) und dem belichteten lichtempfindlichen Papiers (40), die übereinandergelegt sind, herauszudrängen; und
einem thermischen Druckkopf (47) zur Erwärmung der übereinandergelegten Bildempfangsschicht (1) und des belichteten lichtempfindlichen Papiers (40), um das zusammengesetzte Bild von dem belichteten lichtempfindlichen Papier auf die Bildempfangsschicht zu übertragen.

11. Vorrichtung nach Anspruch 10, wobei die Belichtungseinrichtung (61) eine Kathodenstrahlröhre (12, 23, 30) aufweist zur Anzeige des zusammengesetzten Bildes darauf, dem das lichtempfindliche Papier ausgesetzt wird.
12. Vorrichtung nach Anspruch 10, wobei die Belichtungseinrichtung (61, 62) eine optische Bild-Zusammensetz-Einrichtung (63, 66) zum zusammensetzen eines Bildes des Gesichtes eines Antragstellers das einem Antragsformular beigefügt ist, und Personaldaten des Anmelders auf einem Datenblatt aufweist.
13. Vorrichtung nach zumindest einem der Ansprüche 10-12, wobei die Kassette (45) das lichtempfindliche Papier in Form einer Rolle (40) enthält.
14. Vorrichtung nach zumindest einem der Ansprüche 10-13, die ferner eine Vorkammer (42) aufweist, die vor der Überlagerungseinrichtung angeordnet ist, zur Aufbewahrung des belichteten lichtempfindlichen Papiers darin in Form einer Schleife.
15. Vorrichtung nach Anspruch 14, die ferner eine Wasserauftragsvorrichtung (43) aufweist, die zwischen der Vorkammer (42) und der Überlagerungseinrichtung (46) angeordnet ist, zum Auftrag von Wasser als Aktivierungsmittel zur Förderung der Übertragung des zusammengesetzten Bildes auf die belichtete Oberfläche des lichtempfindlichen Papiers.
16. Vorrichtung nach zumindest einem der Ansprüche 10-15, wobei die Überlagerungseinrichtung ein Paar Druckbeaufschlagungswalzen (46) aufweist.

Revendications

1. Procédé de fabrication d'un livret personnel, destiné à donner l'identité d'un porteur du livret, comprenant

l'étape suivante :

la disposition d'une couche, ayant une photographie et des données personnelles du porteur du livret, entre une feuille transparente de couverture et une feuille de support,

caractérisé en ce que :

la feuille transparente de couverture (2) et la feuille de support (3) sont fixées dans le livret séparément et l'une à côté de l'autre,

la couche est une couche (1) de réception d'image formée sur la feuille transparente de couverture ou la feuille de support,

la photographie et les données personnelles sont formées sur la couche de réception d'image sous forme d'une image composite, formée par un dispositif de composition d'image, dans lequel la photographie du demandeur et les données personnelles sont introduites, et

l'image composite est tirée photographiquement sur un papier photosensible et est reportée thermiquement sur la couche de réception d'image, et la feuille transparente, avec la couche de réception d'image, est collée à la feuille de support.

2. Procédé selon la revendication 1, dans lequel l'image composite est réalisée à l'aide d'un ordinateur (14).
3. Procédé selon la revendication 1, dans lequel l'image composite est formée optiquement.
4. Procédé selon l'une au moins des revendications 1 à 3, dans lequel les données personnelles sont saisies à l'aide d'un appareil de traitement de texte (12).
5. Procédé selon l'une au moins des revendications 1 à 4, dans lequel l'image du visage du demandeur est introduite à l'aide d'une caméra de télévision (20).
6. Procédé selon l'une au moins des revendications 1 à 4, dans lequel l'image du visage du demandeur est introduite à l'aide d'un lecteur (21) d'image en couleurs.
7. Procédé selon l'une au moins des revendications 1 à 6, dans lequel la couche (1) de réception d'image est formée sur la feuille transparente (2) de couverture fixée dans le livret et est collée à la feuille de support (3) fixée dans le livret par une couche adhésive (4) appliquée à la feuille de support (3).
8. Procédé selon l'une au moins des revendications 1 à 6, dans lequel la couche (1) de réception d'image est formée sur la feuille de support (3) fixée dans le livret et est collée à la feuille transparente (2) de couverture fixée au livret par une couche transparente adhésive (4) appliquée à la feuille transparente (2).

9. Procédé selon l'une au moins des revendications 1 à 6, dans lequel la couche (1) de réception d'image est formée sur la feuille de support (3) fixée dans le livret et est collée à la feuille transparente (2) de couverture fixée dans le livret par une feuille adhésive (4).
10. Appareil de fabrication d'un livret personnel ayant une image du visage et des données personnelles du porteur du livret pour la détermination de l'identité du porteur du livret, comprenant :
 - une cassette (41) qui contient un papier photosensible (40),
 - un dispositif (61, 62) d'exposition du papier photosensible (40) à une image composite du visage et des données personnelles,
 - un récipient (45) contenant des livrets (5), chaque livret (5) ayant une page qui porte une couche de réception d'image (1),
 - un dispositif de superposition de la couche (1) de réception d'image de chaque livret (5) prélevé dans le récipient (45) et du papier photosensible exposé (40) afin que l'air soit chassé de la couche (1) de réception d'image et du papier photosensible exposé (40) qui sont superposés, et
 - une tête d'impression thermique (47) destinée à chauffer la couche (1) de réception d'image et le papier photosensible exposé (40) qui sont superposés afin que l'image composite soit reportée du papier photosensible exposé à la couche de réception d'image.
11. Appareil selon la revendication 10, dans lequel le dispositif d'exposition (61) comporte un tube à rayons cathodiques (12, 23, 30) destiné à afficher l'image composite à laquelle est exposé le papier photosensible.
12. Appareil selon la revendication 10, dans lequel le dispositif d'exposition (61, 62) comporte un dispositif (63, 66) de composition optique d'une image afin qu'une image du visage du demandeur fixée à un formulaire de demande et des données personnelles du demandeur placées sur une feuille de données soient composées.
13. Appareil selon l'une au moins des revendications 10 à 12, dans lequel la cassette (45) contient le papier photosensible sous forme d'un rouleau (40).
14. Appareil selon l'une au moins des revendications 10 à 13, comprenant en outre une antichambre (42) placée avant le dispositif de superposition et destinée à retenir à l'intérieur le papier photosensible exposé sous forme d'une boucle.
15. Appareil selon la revendication 14, comprenant en outre un applicateur d'eau (43) placé entre l'antichambre (42) et le dispositif de superposition (46).

afin qu'il applique de l'eau comme activateur qui favorise le report de l'image composite à la surface exposée du papier photosensible.

16. Appareil selon l'une au moins des revendications 10 à 15, dans lequel le dispositif de superposition comporte deux rouleaux (46) d'application de pression.

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FIG. 1

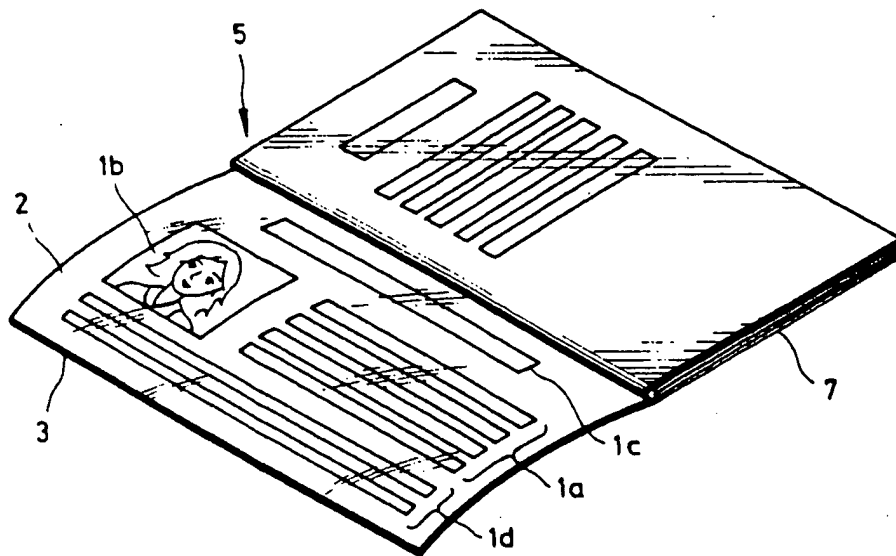


FIG. 2

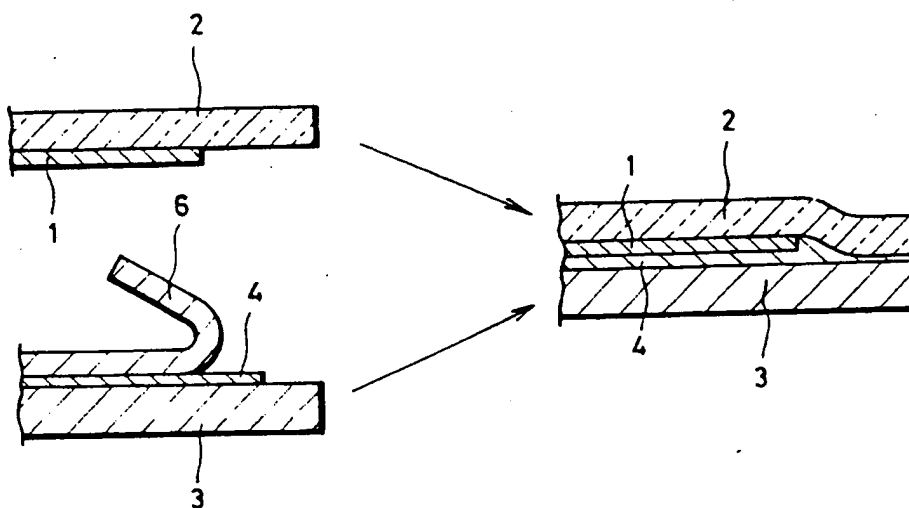


FIG. 3 A

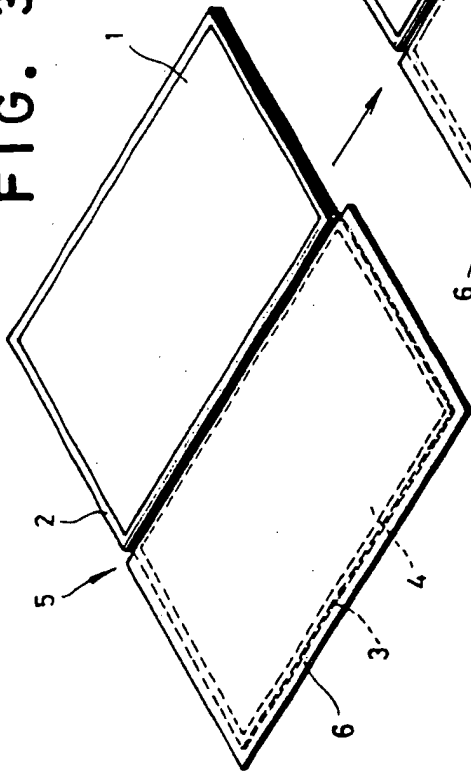


FIG. 3 B

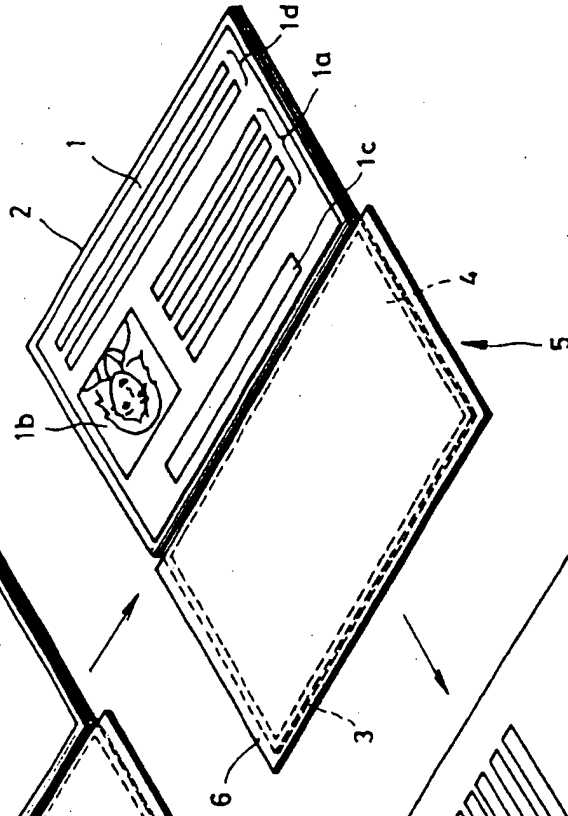


FIG. 3 C

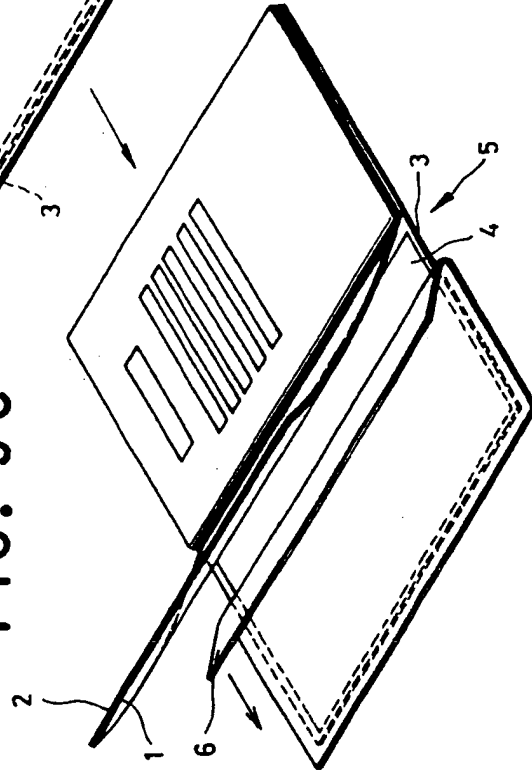


FIG. 4

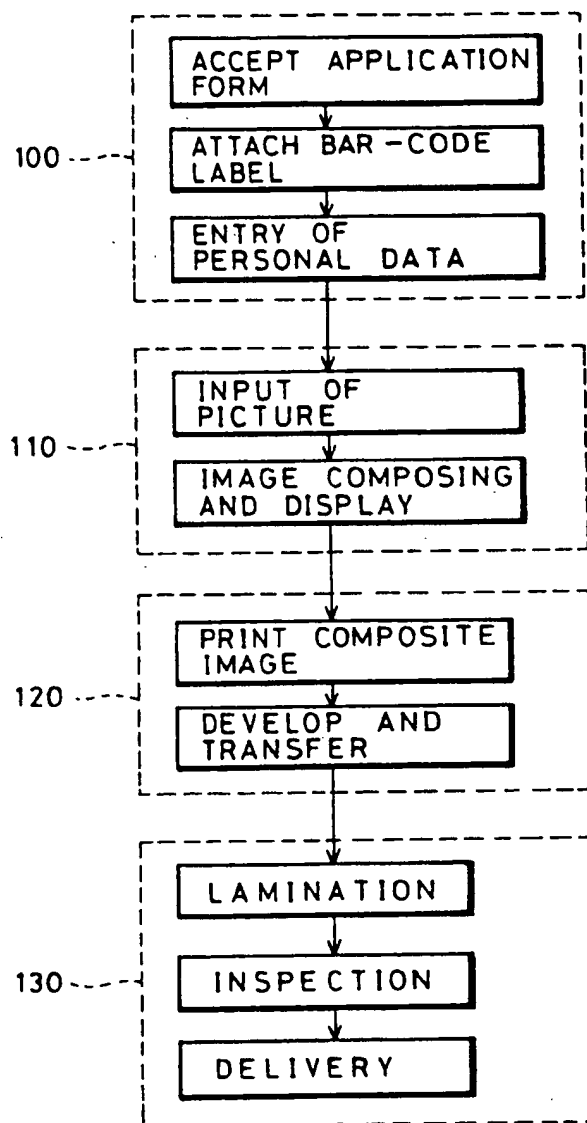
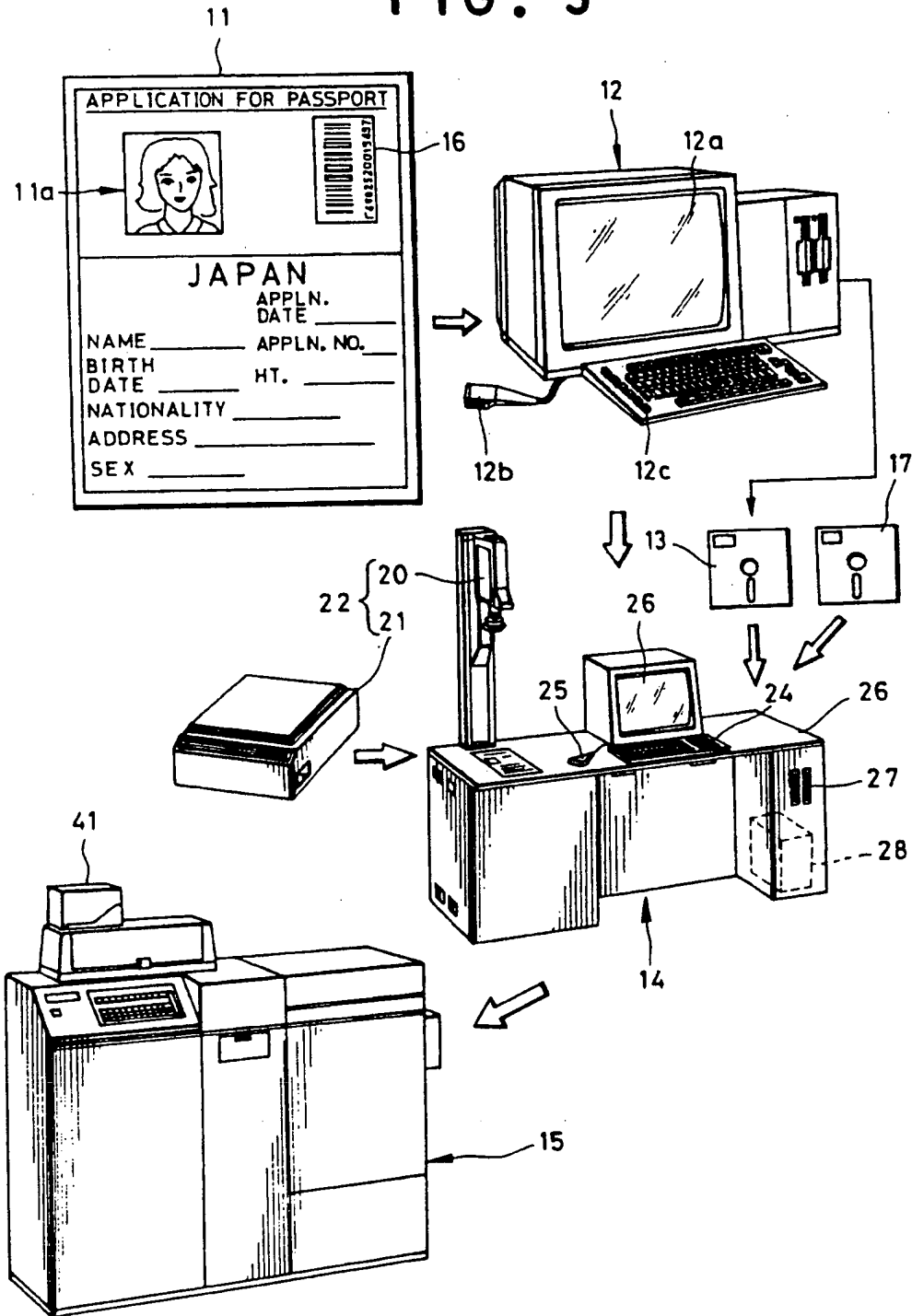


FIG. 5



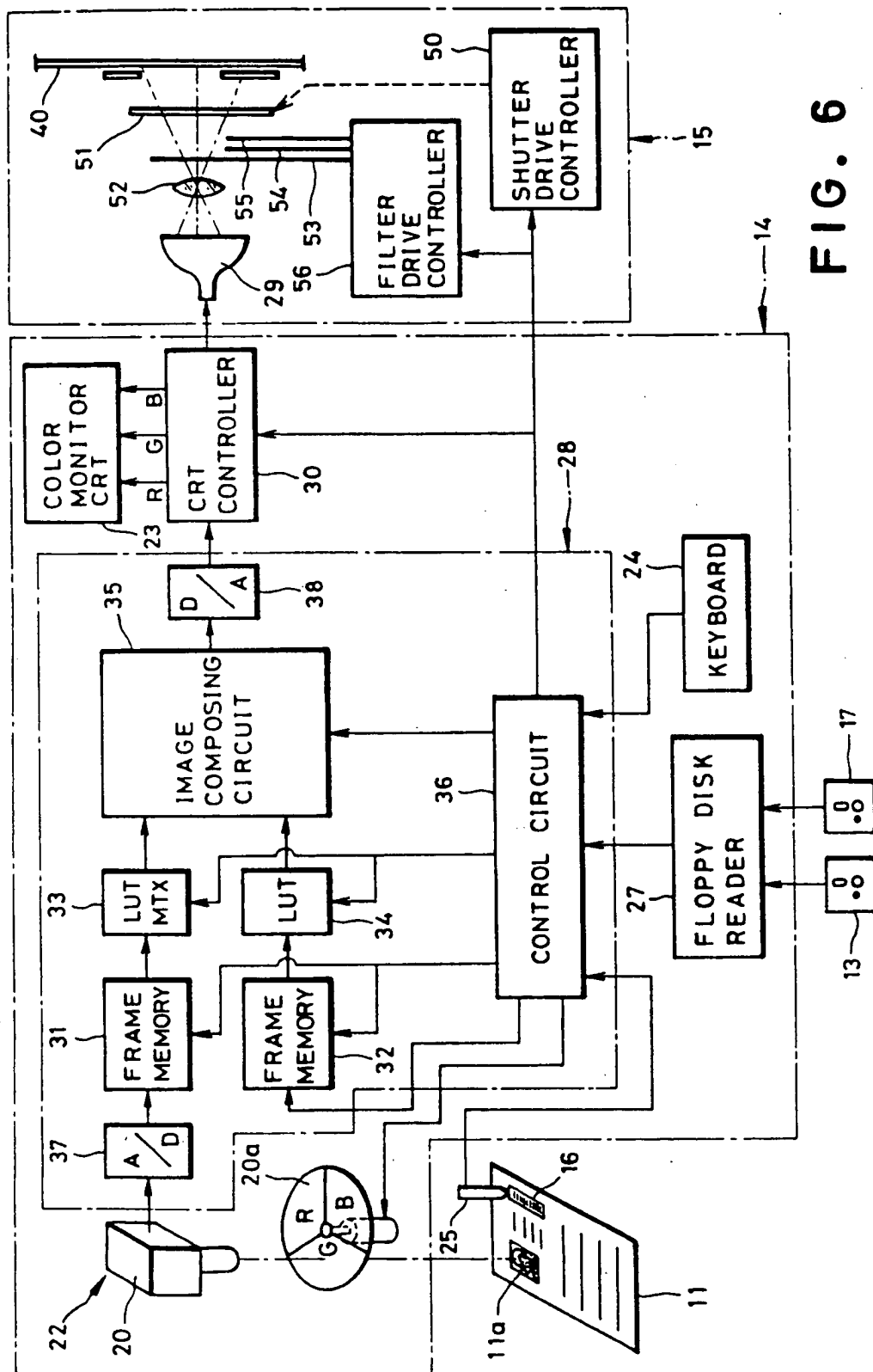


FIG. 6

FIG. 7

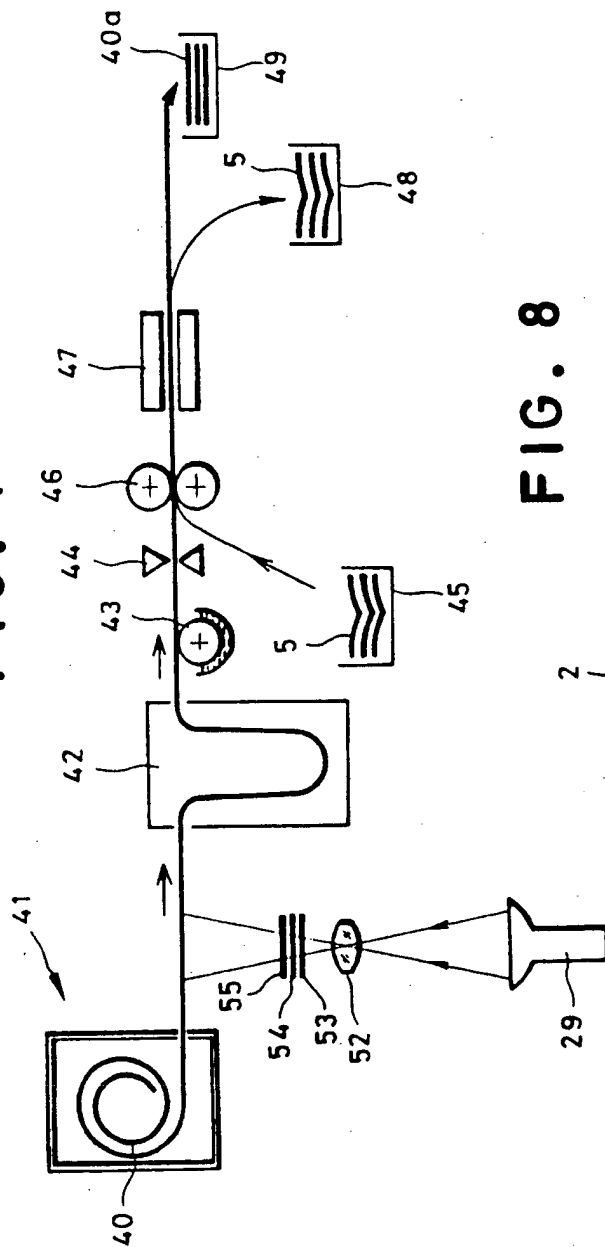


Fig. 8

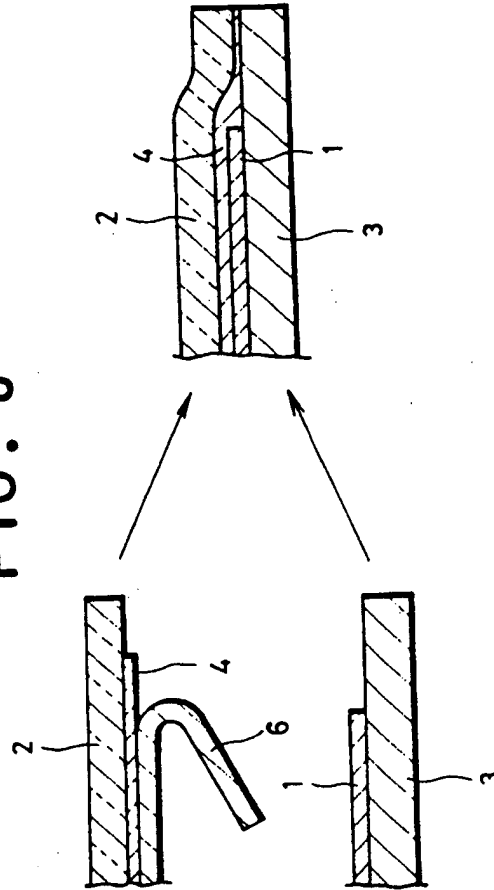


FIG. 9

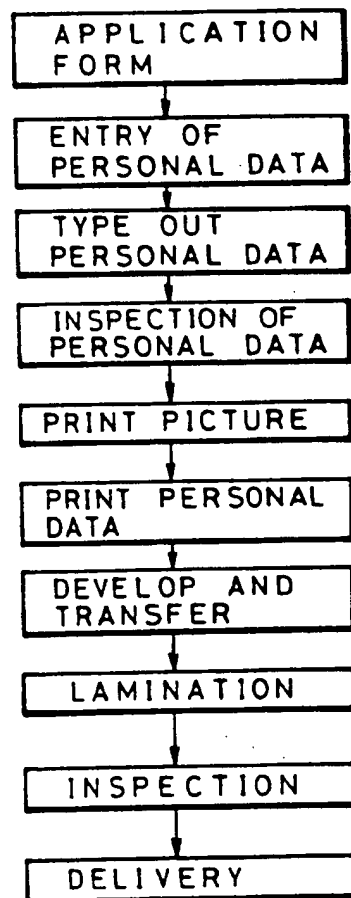


FIG. 10

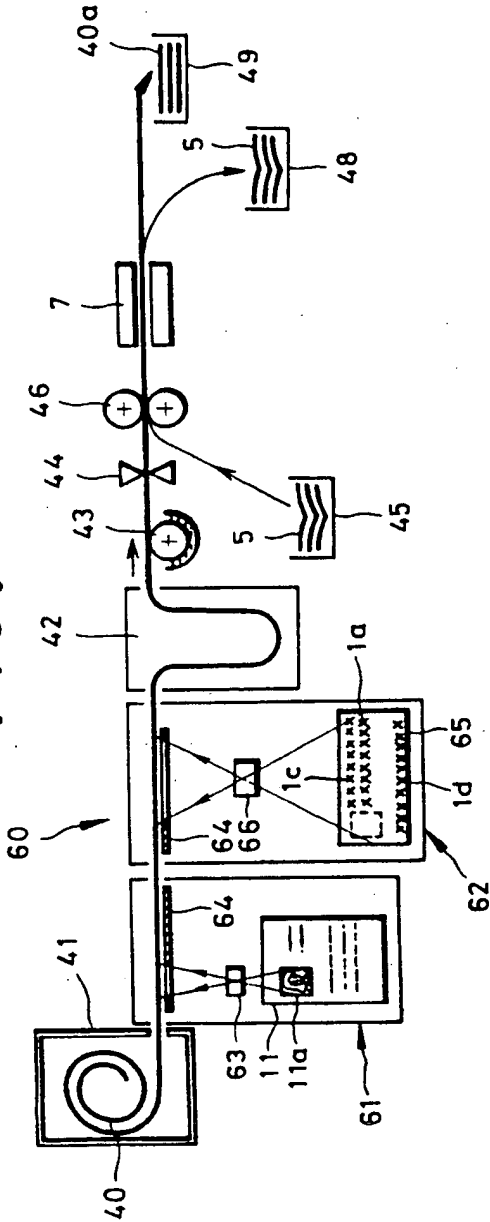


FIG. 11A

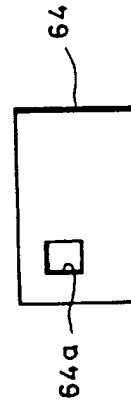


FIG. 11C

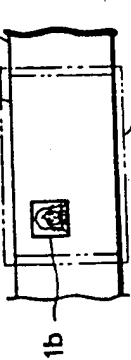


FIG. 11B

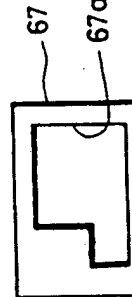


FIG. 11D

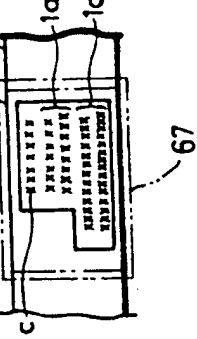


FIG. 12

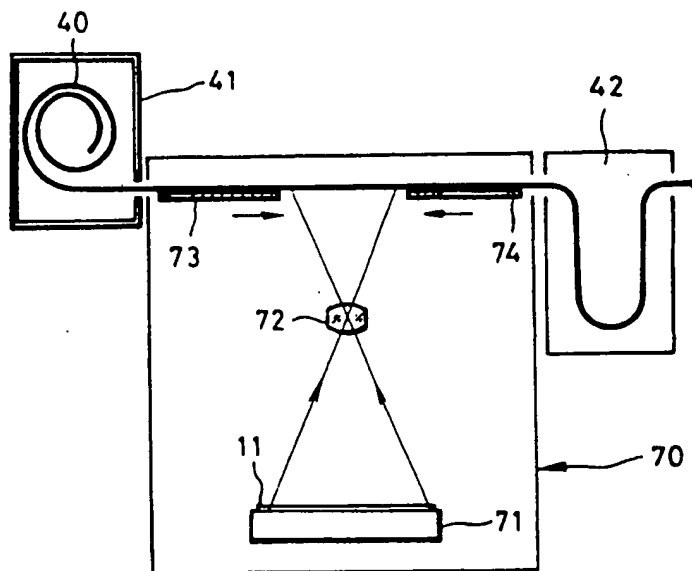


FIG. 13

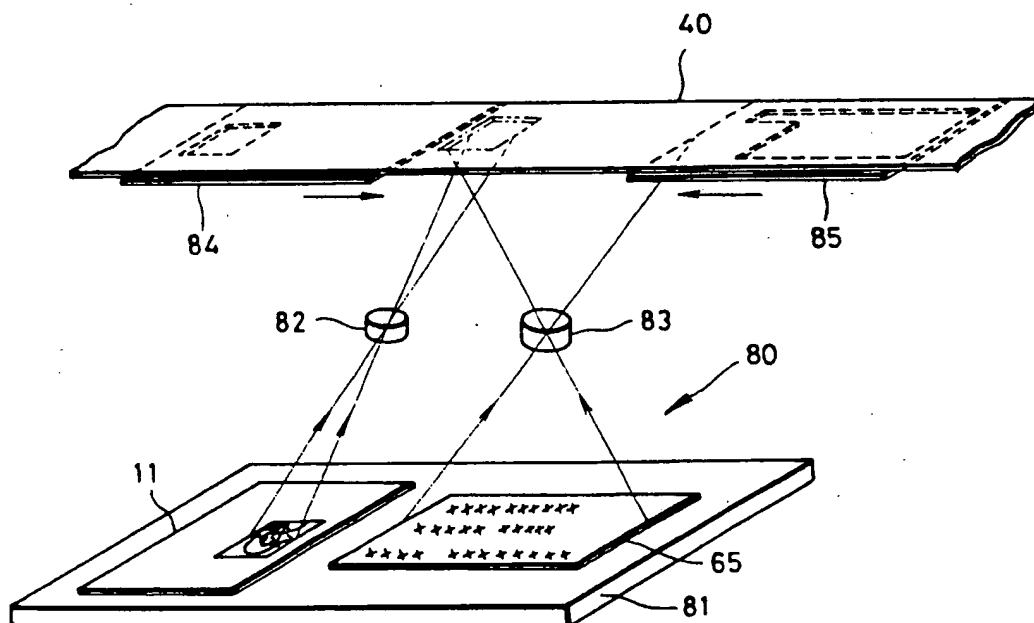


FIG. 14

